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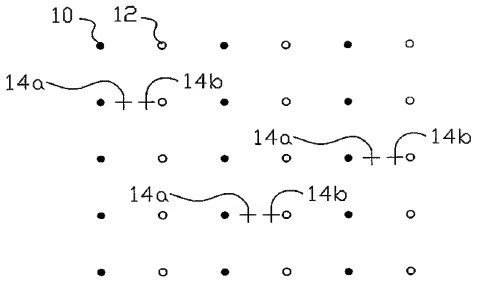
(54) Title: ELECTRICALLY ENHANCED IN SITU REMEDIATION OF CONTAMINATED SOIL



(57) Abstract: During in situ electroremediation of soil electric fields generated by electrodes (10, 12) that are located in the soil are used to move contamination, complexing agents, chemical reagents and/or nutrients through soil or to heat the soil. Control of the voltages and/or currents on or through the electrodes (10, 12) is used to prevent electrode clogging problems, to reduce unnecessary power consumption and/or to prevent boiling. In one aspect (electrokinetic remediation and electro heating) the current through selected electrodes (10, 12) is temporarily stepped down if the onset of clogging and or boiling is detected from an increase in the electrical resistances from an electrode into the soil. Preferably an effect of soil resistivity changes on the detection is removed by using sensing electrodes (14a, 14b) in the soil. In another aspect (elektrokinetic (bio) fence / screen) the voltage or current is adapted dependent on measured groundwater flow speed changes, so that the method remains effective with minimum power consumption. In yet another aspect (electrokinetic phyto remediation) polarity reversals of the current are timed using cumulative current measurements.

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